

IN THE CLAIMS

1. **(currently amended)** A transmitter in a network where a plurality of transmitters have an individual specific address and are connected through different transmission paths so that a packet with information about a source address is transmitted, said transmitter comprising:

a plurality of transmission path ports respectively connected to said different transmission paths, each transmission path port being adapted to send said packet to and receive said packet from one of said transmission paths; and

a relay section for relaying the received packet received in one of said transmission path ports to a relay transmission path of said transmission paths by which said received packet reaches its destination;

wherein said relay section comprises:

a table for storing information about the relay of said received packet to one of said transmission path ports connected to said relay transmission path, correlated with a port identifier of each said transmission path port and the source address of the transmitter that transmitted said packet; and

a router for extracting the port identifier of the transmission path port that received said packet and said source address contained in said received packet, and routing said received packet to one of said transmission path ports, which is connected to said relay transmission path, by referring to said table for said extracted port identifier and source address, wherein said router comprises:

a receiving port extracting part for extracting the receiving port identifier of the transmission path port that received said packet;

a source address extracting part for extracting the source address contained in said received packet; and

a routing part for performing said routing by referring to said table in response to said receiving port identifier extracted by said receiving port extracting part and said source address extracted by said source address extracting part, wherein said routing part comprises:

a judging part for judging whether or not to relay said received packet by referring to said table, based on said receiving port identifier extracted by said receiving port extracting part and said source address extracted by said source address extracting part; and

an assigning part for assigning said received packet to a transmission path port when it is judged by said judging part that said received packet is to be relayed, said assigning part comprising a plurality of transmitting parts each corresponding to a respective one of said transmission path ports,

said judging part outputs a plurality of judged results for said plurality of transmitting parts, respectively, and

each of said plurality of transmitting parts outputs said received packet to a respective one of said transmission path ports on the basis of a corresponding judged result from said judging part.

2. (canceled)

3. (previously presented) The transmitter as set forth in claim 1, wherein, as said information about the relay of said received packet correlated with said receiving port identifier and said source address, said table stores both information that said received packet is not relayed if it circulates within said network, and information that said received packet is relayed if it does not circulate within said network.

4. (previously presented) The transmitter as set forth in claim 3, wherein said network has a mesh path or ring path through which said received packet can circulate.

5. (previously presented) The transmitter as set forth in claim 1, wherein in the case where a path to a destination transmitter is divided into a plurality of paths and has a redundant structure,

when said received packet is routed by said router, transmission path ports to relay said received packet are assigned in said table so that many of them are not relayed only to a specific path forming said redundant structure.

6. – 7. (canceled)

8. (**currently amended**) A packet transmission method for a network where transmitters with an individual address are connected through ~~a different~~ transmission paths so that a packet with information about the address of a source transmitter is transmitted from the source transmitter to a destination transmitter,

in a relay transmitter between said source transmitter and said destination transmitter, said method comprising

a port extracting step of extracting the receiving port identifier in a packet received through said transmission path,

an address extracting step of extracting a source address contained in said received packet, and

a routing step of routing said received packet, based on said extracted receiving port identifier and said extracted source address, wherein said routing step comprises:

a judgement-judgment step of judging whether or not to relay said received packet for each of a plurality of transmission paths, based on said extracted port identifier and said extracted source address; and

an assignment step in which, when it is judged in said judgement-judgment step that said received packet is to be relayed, said received packet is assigned to a transmission port corresponding to one of said plurality of transmission paths, and when it is judged in said judgement-judgment step that said received packet is not to be relayed, information that said received packet is not relayed is issued and said received packet is not assigned to a correlated transmitting transmission port corresponding to another of said plurality of transmission paths.